TITLE

AIRFRAME TENT AND PUMP

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to an inflatable tents and its components and more particularly, relates to an inflatable tent having redundant airbeams connected via a sewing flap at the midseam of the redundant airbeams, an integrated pump, a valve interface, a soft pump, and a rollup stuff sack for storing the components therein.

DESCRIPTION OF THE RELATED ART

[0002] Conventional tents utilize rigid and segmented poles. Typically, the poles are made out of fiberglass or aluminum and are used in conjunction with tent stakes to support the tent structure. The poles can be problematic during an overnight hike because of their bulkiness. The poles are also fragile and prone to failure under extreme conditions. They can bend and break and tear through a tent in heavy winds.

[0003] Conventional tents are adequate for their basic purpose and function however, some require considerable effort to set up and break down. It often takes some practice to set up a conventional tent because the poles may come in different lengths or shapes. The poles also tend to freeze together in extremely cold conditions, making the break down of the tent difficult.

[0004] Most conventional tents are transported in ordinary fabric stuff sacks. It is desirable for carrying the tent in a backpack to have it store as small and light as possible. Conventional tents are limited in how small they may be packed by the length of their poles.

[0005] Inflatable tents have been designed in the past. Most inflatable tents rely on large volume inflatable components or high pressure smaller volume components to achieve structural integrity. Large volumes require more time to inflate, whereas high pressure supports require heavy pumps or compressed air. Neither of these systems are ideal for the backpacking application. The ideal system uses low pressure, low volume supports.

[0006] The problems with the prior art inflatable tents have included a lack of reparability in the case of puncture, excess weight as a result of outdated material technology, and inefficient inflation either because of high air volumes or cumbersome pumps. Some higher pressure, lower volume designs have necessitated the use of compressed air for inflation which is heavy, expensive and potentially dangerous, making it impractical for backpacking applications.

[0007] Finally, a tent should be easy and inexpensive to manufacture, thus keeping the cost down for the consumer. The

present invention is directed to an inflatable backpacking tent and its components designed to achieve each of these goals.

SUMMARY OF THE INVENTION

[0008] The present invention relates to an inflatable tent having redundant airbeams connected by means of a sewing flap at the midseam of the redundant airbeams, for holding bladders therein. The present invention also features an integrated pump and soft pump for pumping air into the bladders of the inflatable tent, and a valve interface for receiving the air from the integrated pump or soft pump and distributing it to at least one of the bladders, and a rollup stuff sack for storing the inflatable tent and its components.

[0009] It is important to note that the present invention is not intended to be limited to a system or method which must satisfy one or more of any stated objects or features of the invention. It is also important to note that the present invention is not limited to the preferred, exemplary, or primary embodiment(s) described herein. Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawing wherein:

[0011] Fig. 1 is a perspective view of an inflatable tent having a double frame construction according to the present invention;

[0012] Fig. 2 is a cross sectional view of a sewing flap used between an inner airbeam and an outer airbeam of a frame, wherein the redundant airbeams provide the supporting structure of the inflatable tent according to one aspect of the present invention;

[0013] Fig. 3 is a top view of a valve interface used to receive air in which to inflate the bladders of the inflatable tent according to the present invention;

[0014] Fig. 4 is a top view of an integrated pump used to pump air into the bladders of the inflatable tent by means of the valve interface according to the present invention;

[0015] Fig. 5 is a perspective view of a soft pump used to pump air into the bladders of the inflatable tent using the valve interface according to the present invention;

[0016] Fig. 6a is a perspective view of a roll-up stuff sack in a rolled out position being stuffed with the inflatable tent and its components according to the present invention;

[0017] Fig. 6b is a perspective view of the roll-up stuff sack being rolled up to hold the inflatable tent and its components according to the present invention;

[0018] Fig. 6c is a perspective view of a roll-up stuff sack in a rolled up position used to hold the inflatable tent and its components when not in use, according to the present invention;

[0019] Fig. 6d is a perspective view of the roll-up stuff sack in a rolled out position used to dry or air out the inflatable tent, its components, or other items according to the present invention;

[0020] Fig. 7 is a photograph of an inflatable tent having a single frame construction according to the present invention;

[0021] Fig. 8 is a schematic diagram of a foam filled the fabric pump according to one aspect of the present invention;

[0022] Fig. 9 is a schematic diagram illustrating the construction of the foam a filled the fabric pump of the present invention; and

[0023] Fig. 10 is an exploded diagram of a fill and dump valve in accordance with one aspect of the present invention;

DETAILED DESCRIPTION OF THE INVENTION

[0024] The present invention includes a novel inflatable tent 10, Fig. 1, and its components. The inflatable tent 10 has a canopy portion 20 attached to a floor portion 22. In the preferred embodiment, the canopy portion 20 and the floor portion 22 are

made of waterproof/breathable nylon or polyester fabric however, other weather resistant and durable materials may be substituted.

[0025] The canopy portion 20 may be formed from a number of panels 30 that are attached to at least one frame 12, which will be described below, by means of a sewing flap 18, and also attached to a floor portion 22. In an alternative embodiment, the canopy portion 20 is a single piece of material.

[0026] It is important to note that the inflatable tent may have any number of frames 12, Fig. 1. For example, a double frame embodiment is shown in Fig. 1, whereas a single frame embodiment is shown in Fig. 7. A first portion 94 and second portion 96 of the inflatable tent 10 are also made from the same type of material as that of panels 30. The portions 94, 96 have stake loops 98 for receiving a tent stake.

[0027] The inflatable tent 10 is held erect by inflating one or more of the frames 12 and staking the stake loops 98 of the portions 94, 96 in the longitudinal direction. The inflatable tent 10 is held erect without the need for tent poles. In alternative embodiments, the sides of the inflatable tent 10 may also have one or more stake loops 98 for receiving tent stakes and for holding the inflatable tent 10 in place.

[0028] The frame 12, Fig. 2, includes redundant airbeams 13a, 13b enclosing bladders 36a, 36b. The redundant airbeams 13a, 13b are preferably made of dimensionally stable synthetic fabric, however,

other materials may be substituted. The bladders 36a, 36b are inflatable members and contained within the redundant airbeams 13a, 13b. The bladders 36a, 36b are elastic and airtight, and are used to receive and hold air. Further, the bladders 36a, 36b are easily replaceable and repairable in the event of a puncture.

[0029] When the bladders 36a, 36b are inflated, the redundant airbeams 13a, 13b are arcuate in overall shape and form an inner airbeam 13a and an outer airbeam 13b. The redundant airbeams 13a, 13b restrict the inflation of the bladders 36a, 36b to a certain shape and diameter. In the preferred embodiment, the bladders 36a, 36b are made from sheet urethane that is RF welded along the edges; however, other expandable and airtight materials and methods of heat sealing may be substituted.

[0030] The redundant airbeams 13a, 13b provide the supporting structure of the inflatable tent 10. The twin shell construction of the frame 12 includes an outer layer of fabric of the redundant airbeams 13a, 13b, for providing the shape of the redundant airbeams, 13a, 13b, and for containing the bladders 36a, 36b, while the inner material of the bladders 36a, 36b hold air when inflated.

[0031] When the bladders 36a, 36b are inflated, the inner airbeam 13a is arcuate and the outer airbeam 13b is also arcuate and extends parallel and adjacent the inner airbeam 13a. In the preferred embodiment, the outer airbeam 13b is positioned above

the inner airbeam 13a although this is not a limitation of the present invention, as the airbeams could also be side by side in the same general horizontal plane. In addition, although the present invention is explained using circular shaped airbeams, this is for exemplary purposes only as the beams could be any shape including, but not limited to triangular, square, rectangular, octagonal, trapezoidal, etc.

[0032] The bladders 36a, 36b and the redundant airbeams 13a, 13b provide sturdy support for the canopy portion 20 and keep the inflatable tent 10 erect and in the "use" position. Further, the redundant airbeam design significantly improves the strength of the structure, making possible the use of lower air pressure.

[0033] Each frame 12 or redundant airbeams 13a, 13b are made from two sheets of dimensionally stable synthetic fabric. In the preferred embodiment, the two dimensionally stable synthetic fabric sheets are joined together at a top seam 38b, Fig. 2 with top-stitching, giving a finished appearance to the outside of the tent. Thereafter, the two dimensionally stable synthetic sheets are then joined together at a bottom seam 38a with a basting stitch and edge binding. Finally, the two dimensionally stable synthetic sheets are joined together at a midseam 24 with double stitching through the sewing flaps 18. However, in alternative embodiments, other types of joining may be used. For example, RF welding may be used to join the sheets together. RF welding will

allow the redundant airbeams 13a, 13b to be welded flat in one operation. This joining construction, being airtight, could also obviate the need for bladders 36a and 36b. A single wall design has the benefit of being more lightweight and easy to manufacture, however, in the case of a puncture, it is beneficial to have bladders, which can easily be repaired or replaced.

[0034] The sewing flap 18 is preferably sewn to the midseam 24 of the frame 12. The sewing flap 18 is preferably an oxford nylon or polyester, but a variety of fabrics could be used. In the preferred embodiment, the sewing flap 18 has a first flap portion 26 and a second flap portion 28 that are separate elements sewn to the midseam 24 between the inner airbeam 13a and the outer airbeam 13b of the frame 12. The first flap portion 26 and the second flap portion 28 are operatively attached to the midseam 24 at first ends 34. Second ends 32 of the first flap portion 26 and the second flap portion 28 are used to connect the plurality of panels 30 of the canopy portion 20. In an alternative embodiment, the sewing flap 18 can have any number of flaps for attaching to any number of the plurality of panels 30.

[0035] In the preferred embodiment, the sewing flap 18 is double stitched to the midseam 24 of the frame 12 and/or the canopy portion 20 for added strength. However, in alternative embodiments, other types of joining may be used. For example, RF welding may be used to join the sewing flap 18 to the midseam 24

of the frame 12 and/or the canopy portion 20 for added strength and simplification.

[0036] The top seam 38b may be top-stitched or welded on an inside circumference of the outer airbeam 13b protruding inside the outer airbeam 13b. The bottom seam 38a may be extending from an outer circumference to produce an outward extending overlap that is edge binded.

[0037] The first flap 26 and the second flap 28 of the sewing flap 18 allow the adjacent plurality of panels 30 to be sewn to the redundant airbeams 13a, 13b and matched edge-to-edge with notches for proper alignment. This is a significant benefit during production. Also, the sewing flap 18 may be of a heavier material, which strengthens the midseam 24 of the redundant airbeams 13a, 13b without adding a significant amount of weight. Further, since the adjacent plurality of panels 30 may be sewn with standard top-stitching or flat-felled stitching, a finished look with taped seams is more easily achieved.

[0038] Figs. 1 and 3 show the valve interface 14, which is used for receiving air from an external source, such as a pump. The valve interface 14 is in fluid connection with the bladders 36a, 36b in the redundant airbeams 13a, 13b of each of the frames 12 by means of an air supply line 16. The air supply line 16 is preferably a 3/8th inch outside diameter urethane tubing, however, other flexible tubing may be substituted. The air

supply line 16, preferably, runs along the inside of the inflatable tent 10 to each of the frames, although this is not a limitation of the present invention as each frame could have a valve interface although this would make inflating the frame(s) more time consuming but on the other hand, insulate the failure of one frame 12 from a good frame 12.

[0039] The valve interface 14 has an inflation valve 40. The inflation valve 40 is preferably a Halkey Roberts #147-ACUR straight connector with a Colder Products APC model quick disconnect with internal shut-off, however, other one-way valves may be substituted. The inflation valve 40 of the valve interface 14 receives air from an external source. The incoming air travels to the bladders 36a, 36b via the air supply line 16.

[0040] The valve interface 14 also typically has a deflation valve 42 for deflating the bladders 36a, 36b. The deflation valve 42 is preferably a Carmo (Cosmos-Kabar) #3-730 deflation valve although other deflation valves may be substituted.

[0041] In a double frame embodiment as the one shown in Fig. 1, the valve interface 14, Fig. 3, has a first end 44 and a second end 46 in fluid connection with the air supply line 16. The first end 44 is in fluid connection with one of the frames 12, and the second end 46 is in fluid contact with another of the frames 12.

[0042] Air is received through the inflation valve 40 and exhausted through the deflation valve 42. The valve interface 14 and the air supply line 16 provide an integral system of inflating and deflating each of the bladders 36a, 36b forming the redundant frames(s) 12.

[0043] The valve interface 14 is preferably mounted to the inside of the inflatable tent 10, however, the inflation valve 40 and the deflation valve 42 extend through and to the outside of the inflatable tent 10. The valve interface 14 precludes moisture from entering the air supply line 16 and the bladders 36a, 36b, and also may be fitted with a conventional well known moisture filter, such as an open celled urethane foam, to further preclude contamination from entering the air supply line 16 and the bladders 36a, 36b. In the preferred embodiment, when the tent is stored, the deflation valve 42 is left in the "open" position to facilitate evaporation of any moisture in the valve interface 14 and the bladders 36a, 36b.

[0044] In the preferred embodiment, the valve interface 14 has a body 48 that is made from urethane coated ripstop nylon, however, other airtight materials may be substituted. The body 48 is airtight and RF welded or heat-sealed, and serves as an inflation manifold and is in fluid connection with the inflation valve 40, the deflation valve 42, the first end 44, and the second end 46 and the air supply line 16. The RF welding or heat sealing of

the body 48 of the valve interface 14 is an economical, precise, and high-strength method of joining the fabric pieces, tubing, and valves in a single operation. Urethane coated nylon fabric is preferred for weldability, airtightness, and functionality in a wide range of temperatures. Urethane tubing and valves are similarly desirable and provides for proper seal with the urethane-coated fabric. The urethane tubing is sealed into the body 48 to allow an airtight connection of a standard barbed coupling. In that way, the connecting tubes, hoses, and valves may be any of a variety of materials depending on the performance characteristics desired.

[0045] Figs. 1 and 4 show an integrated pump 50 used to inflate the bladders 36a, 36b of the inflatable tent 10 through the valve interface 14 and the air supply line 16. Unfortunately, the human lung cannot provide enough air pressure to appropriately inflate the tent bladder. Accordingly, a pump of some sort must be used to in effect amplifier the long pressure. Since the lungs can only comfortably provide approximately one half pounds of pressure, approximately 5 or more pounds (5 to 10 preferably) are required to properly fill a tent bladder. A pump of some sort is thereby needed to amplify the air pressure available from a user's lungs to fully inflate the frame(s) 12 with enough air pressure.

[0046] Conventional foot pumps have been used to inflated objects such as the inflatable tents 10; however, they are too bulky to carry on a hiking or camping trip in the wilderness. These conventional pumps typically use metal return springs to replenish air volume after being compressed, whereas the integrated pump 50 is a novel approach that obviates the need for bulky springs or convolutes found in conventional pumps. The integrated pump 50 is small, flexible, foldable, and compact. The integrated pump 50 is inflated by the user's lungs after each compression.

[0047] The integrated pump 50 is made from an airtight fabric, such as urethane coated ripstop nylon. The fabric is made into a pouch 52. The pouch 52 is airtight and RF welded or heat-sealed. The pouch 52 is an inflation manifold and is in fluid connection with an input hose 54 and an output hose 56.

[0048] The input hose 54 and the output hose 56 are attached to the pouch 50 of the integrated pump 50 using tube seals and are sealed airtight. The input hose 54 is preferably a ½ inch outside diameter urethane tubing, such as #200-1307 from New Age Industries. The input hose 54 has an oral inflation valve 60, which is inserted into an end of the input hose 54. The oral inflation valve 60 is preferably a Halkey-Roberts #720 ROA oral inflation valve. The oral inflation valve 60 is inserted into an

end of the input tube 54 and into the pouch 52 of the integrated pump 50. The oral inflation valve 60 is flexible.

[0049] The output hose 56 is preferably an 11/16th inch outside diameter urethane tubing, such as #200-1615 from New Age Industries. The output hose 56 has another Halkey-Roberts #720 ROA oral inflation valve inserted into the same end as a Colder Products model APC quick disconnect which connects to the interface valve 40 or the manifold for an inflatable object. A manual inflation valve 58 is also attached to the pouch 50. The manual inflation valve 58 is preferably a Carmo #3-115 inflation valve however, other similar valves are available from Halkey Roberts and others. The manual inflation valve 58 is sealed air-tight to the pouch 52.

[0050] The manual inflation valve 58 provides a dual function of offering an interface for an ordinary tapered fitting common to inflatable boat and beach ball pumps, and also a means of allowing the interior of the integrated pump 50 to dry out when not in use. Moisture from the lungs will collect inside the integrated pump 50 during use and without a means for drying it out, the moisture could lead to mildew and premature deterioration of the fabric that forms the integrated pump 50.

[0051] The pouch 52 is best constructed by RF welding or heat sealing which provides an economical, precise and high-strength method of joining the fabric pieces, tubing and valve in a single

operation. Urethane coated nylon fabric is preferred for weldability, airtightness, and functionality in a wide range of temperatures. Urethane tubing and valves are similarly desirable and may be required for proper seal with the urethane-coated fabric. The urethane tubing is sealed into the fabric pouch 52 to allow the connection of a standard barbed coupling. In that way, the input hose 54 and the output hose 56 may be any of a variety of materials depending on the performance characteristics desired.

[0052] To use the integrated pump 50, the user first connects the output hose 56 to the inflation valve 40 of the valve interface 14 or any manifold on an inflatable object. In this embodiment, the integrated pump has an integral check valve in the output hose 56, however, the manifold or valve (such as valve 14) of the inflatable object could have its own check valve.

[0053] There are several methods of operating the integrated pump 50. In the preferred embodiment, the pouch 52 of the integrated pump 50 is placed under the ball of the user's foot, and the user blows into the input hose 54 which is connected to the oral inflation valve 60. A good rhythm of blowing into the oral inflation valve 60 of the integrated pump 50, and then rocking the foot forward to compress the pouch 52 of the integrated pump 50 is preferred. The process or method is repeated, which will provide for highly efficient pumping.

Another method is for the user to compress the pouch 52 of the integrated pump 50 in his/her hand, which allows the user to stand up while using the integrated pump 50.

[0054] In summary, the user blows into the oral inflation valve 60 to fill the pouch 52 of the integrated pump 50. The oral inflation valve 60 is a one-way valve. The pouch 52 is then compressed to create the 5 to 10 psi necessary to sufficiently inflate the bladders 36a, 36b of the inflatable tent 10. This is significant because the average person cannot blow much more than 2 psi whereas 5 or more psi are required to properly inflate the bladders 36a, 36b of the inflatable tent 10. The user's lungs behave as the return spring would in an ordinary foot pump, replenishing the air inside the pouch 52 of the integrated pump 50. The integrated pump 50 offers a very lightweight, and simple method of amplifying pressure.

[0055] The integrated pump 50 also helps prevent moisture from the air blown into the integrated pump 50 from entering the inflatable tent 10. The oral inflation valve 58 may be opened when the integrated pump 50 is not in use to allow this moisture to evaporate.

[0056] Fig. 5 shows a soft pump 80, which may be used to input air into the inflatable tent 10 or other inflatable device in lieu of the integrated pump 50 previously described. Conventional foot pumps for inflatable sporting goods products

are heavy and clumsy objects made of plastic or metal components. The soft pump 80 is made entirely of flexible, rubbery components. The benefits of this design are that it is lighter, friendlier, more compactable, and more durable than conventional designs.

[0057] The soft pump 80 has a convoluted shape and is made of blow-molded Santoprene, which is a rugged versatile material common in shock boots and CV boots for vehicles. The soft pump 80 has a body 82 that is molded with two orifices 84, 86 therein. A first orifice 84 has a flange for mounting and adhering a Vernay rubber butterfly valve. A second orifice 86 is a smooth bore in which an output hose 88 of the soft pump 80 is operatively attached. The bore in the second orifice 86 is aligned with a recessed channel that circumscribes the part. The output hose 88 may be wrapped around the part in this channel. An end of the output hose 88 has a quick disconnect fitting 90 attached thereto. The output hose 88 is connected to the inflation valve 40 of the valve interface 14 or other manifold for an inflatable device.

[0058] The properties of the Santoprene and geometry of the convolutes cause them to behave as their own return spring. No separate metal spring or foam insert is needed to get the pump to return to its original shape after being compressed.

[0059] In order to blow mold the soft pump 80 in a seamless way, without puncturing the visible surfaces of the pump, horizontal injection pins are used through the input and output openings 84 and 86, respectively. In alternative embodiments, the pump could have an additional opening, which could afterwards be covered and sealed by a separate piece of material such as a strap.

[0060] A base 92 of the soft pump 80 has a tread pattern for helping to keep the pump in place during use. A strap (not shown) is mounted to a bottom of the soft pump 80 and wraps around the pump and secures to itself to keep the soft pump 80 compressed for efficient storage and travel.

[0001] FIGS. 8-10 illustrate another embodiment of a foot pump 110 in accordance with one feature of the present invention. The foot pump is made of a lightweight collapsible material, such as urethane coated fabric 112 and is filled with reticulated foam 114. The fabric material 112 this selected such that it can be easily assembled such as by sewing, gluing, RF welding and the like. The foam features very large open cells and contains approximately 97% air. The foam acts as the return spring for the pump 110. The pump 110 can easily be stored in the tent itself or placed into a stuff sack and carried to remote locations.

[0002] The preferred embodiment of the pump 110 includes a number of bellows or sections 116. Although in the preferred

embodiment includes three sections 116, this is not a limitation of the present invention as one or more sections will suffice. The bellows prevents outward deflection of the pump 110 when compressed. This assures that all of the air found in the bellows will be transferred out of the bellows.

[0003] In order to effectively use the pump of the present invention, a valve 118 must be provided which serves the function of allowing the bellows to quickly fill with air. The filling with air must be nearly instantaneous otherwise the user will have to wait an inordinate amount of time for the bellows to refill before the air can be squeezed or compressed out of the pump again.

[0004] Accordingly, the present invention solves this problem by providing a unique valve 118. As shown in greater detail in Fig. 10, the valve 118 includes a traditional quick dump valve 120 such as available from Hulkey Roberts as dump valve 650AD combined with the valve segment 122 which forms a check valve. The umbrella valve segment 122, such as available from the Vernay company, interfaces with valve platform 124. The tip or protrusion 126 of the valve segment 122 is inserted into opening 128 of the valve platform 124. Lastly, a semi-rigid ring 130 is provided against the bottom region 134 of the fabric material 132 to which the valve 118 is mounted.

[0005] To assemble a valve 118 according to the present invention, the dump valve 120 is RF welded or otherwise attached to the top surface 136 of the fabric or other material 132 to which the valve 118 is mounted. Next, the umbrella valve segment 122 is mated with the valve platform 124. Finally, a semi rigid ring 130 having approximately the same as or slightly greater diameter than the valve 122 is provided and RF welded or otherwise attached to the under surface 134 of the fabric or other material 132 to which the valve 118 is attached. The semi rigid ring 130 serves to make sure that the fabric 132 remains open in the area of the valve 118 to be sure that the air can easily enter the valve 118 which serves as the refill valve. The valve support number 124 and the ring 130 are typically die cut pieces from sheet urethane or other similar material. Accordingly, the valve 118 allows the air to be squeezed out of the bellows into a tube or other similar device 138, FIG 1, while the valve number 122 prevents the air from escaping the valve 118 when the bellows 112 or compressed.

[0061] Fig. 6a shows the roll-up stuff sack 62, wherein the user is stuffing the inflatable tent 10, the valve interface 14, the integrated pump 50, and the soft pump 80 into a sack pouch 64. The sack pouch 64 is large enough to hold the previously listed items. After the items are placed in the roll-up stuff sack 62, a top 66 is fastened to a body 68. The fastener may be hooks and

loops, a zipper, a snap and receiver, clasps, straps, ladder locks, or any similar device.

[0062] The roll-up stuff sack 62 is then rolled up into a tight, compact package as shown in Fig. 6b. Fig. 6c shows a roll-up stuff sack 62 in a rolled up or compressed position. In the rolled up position, the roll-up stuff sack 62 may hold the inflatable tent 10, the valve interface 14, the integrated pump 50, and the soft pump 80 for easy transport and carry.

[0063] Webbing straps 72 have hooks and loops 78, Fig. 6d, at their ends for attaching to each other and for holding the roll-up stuff sack 62 together after rolling. Buckles 70 are used to compress or tightly package the items in the roll-up stuff sack 62. Tightening the webbing straps 72 compresses the roll-up stuff sack 62. Specifically, the user grasps at a pocket 76 and rolls the roll-up stuff sack 62 towards the tapered end, securing the hooks and loops 78 to hold the roll together. The user then clips the buckles 70 and tightens the roll by pulling the webbing straps 72. To remove the items, the process is reversed.

[0064] The roll-up stuff sack 62 may have mesh panels 74. The mesh panels 74 allows the contents to breathe when the roll-up stuff sack 62 is rolled out. The webbing straps 72 at either end of the roll-up stuff sack 62 facilitate hanging. The same webbing straps 72 that keep the roll-up stuff sack 62 in the rolled up position as shown in Fig. 6a may also be used to clip

to itself to form a larger loop for hanging the roll-up stuff sack 62 from a tree branch, line, or another structure as shown in Fig. 6d. The roll-up stuff sack 62 may hold the items previously described after use so that they may be hung and the items allowed to dry out. Further, the roll-up stuff sack 62 may be used to dry out clothing or other items capable of fitting therein. The mesh panels 74 may be made black in color and made of ripstop nylon panels and if the roll-up stuff sack 62 is hung in direct sunlight, it absorbs UV from the sun for quick drying.

[0065] The pocket 76 at a bottom end of the roll-up stuff sack 62 provides a location for tent stakes, a patch kit and other parts. When full, the pocket 76 facilitates the rolling up of the roll-up stuff sack 62.

[0066] In the preferred embodiment, the roll-up stuff sack 62 is made from nylon ripstop, nylon mesh, and nylon flat webbing; however, other materials may be used while retaining the spirit and concept of this invention. These materials have been chosen for their excellent durability and weather resistance. The roll-up stuff sack 62 has double stitching at all integral seams, and back-tacking is used over high-stress areas such as the pocket 76 corners, and edge binding to conceal all raw edges.

[0067] In summary, the roll-up stuff sack 62 allows the user to pack the inflatable tent 10 and its components therein in a very tight bundle with relative ease. The roll-up stuff sack 10 may

also be hung inside the inflatable tent 10 or outside in the sun and used to dry clothing since its dark fabric absorbs UV and its mesh panel 74 allows the contents to breathe and moisture to escape.

[0068] As mentioned above, the present invention is not intended to be limited to a system or method which must satisfy one or more of any stated or implied object or feature of the invention and should not be limited to the preferred, exemplary, or primary embodiment(s) described herein. Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention which are not to be limited except by the allowed claims and equivalents thereto.

[0069] What we claim is: